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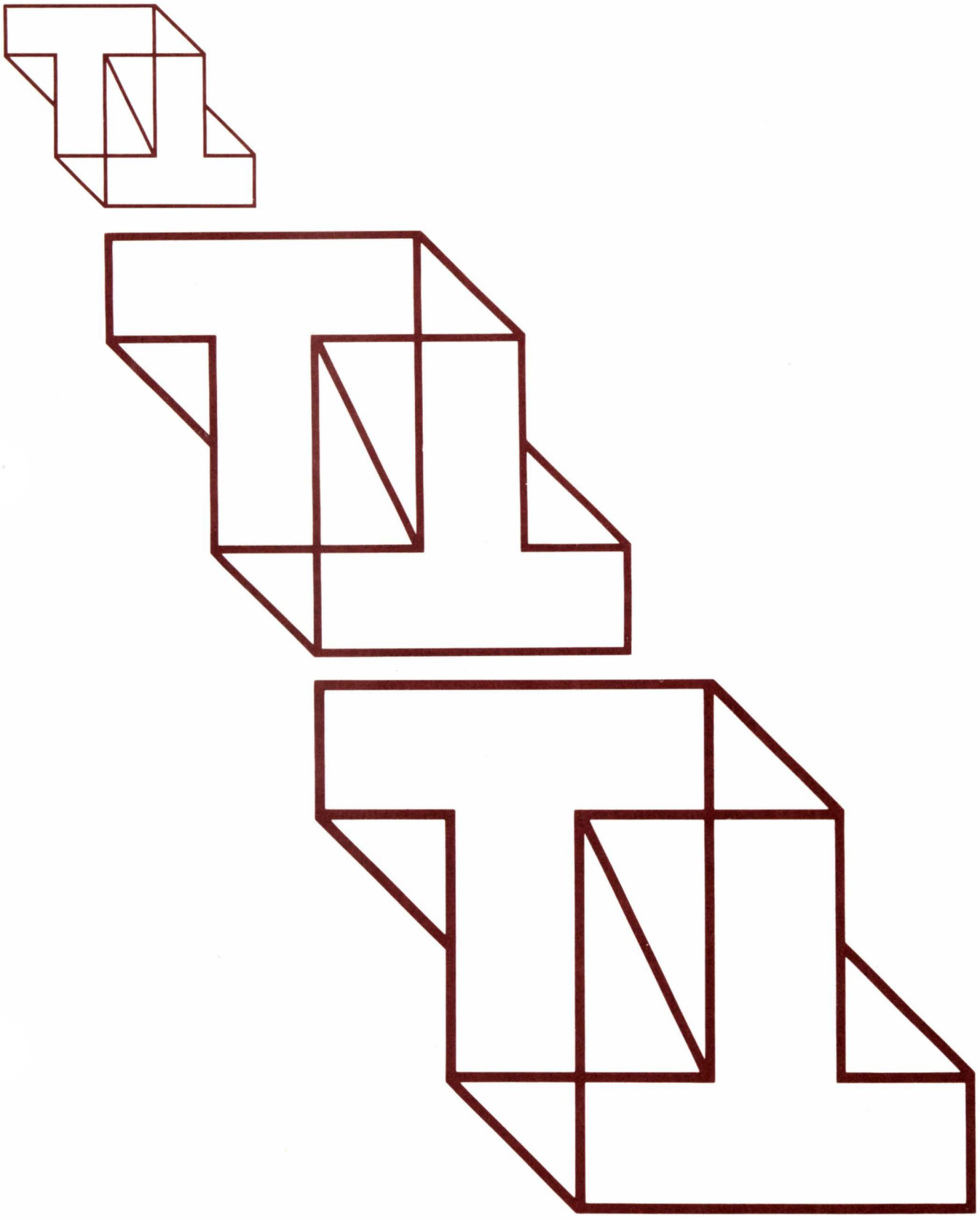
United States
Department of
Agriculture
Forest Service
Washington, D.C.

How to Develop A State Technology Transfer Program



July 1980

Errata

page 15 item IV A. 30% is an example - this will vary from project to project or may not be a factor at all.

page 26 Meeting: Initial contacts may be originated by any interested party. The first meeting will probably be called by the State Forester or FS-S&PF office.

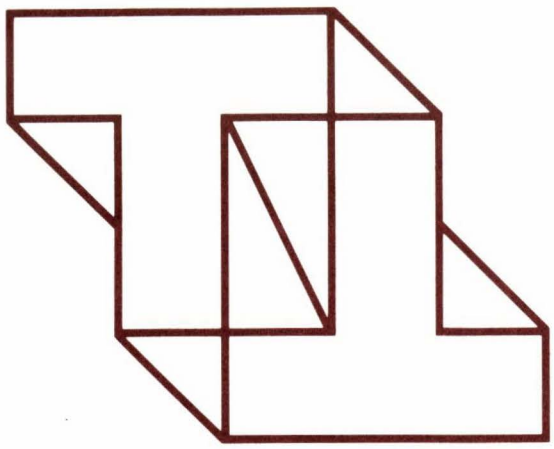
page 27 Approved: Forest Service approval will be by line officers such as Station Director, Regional Forester and Area Director.

Preface

The purpose of this guide is to provide a procedural outline for individuals interested in developing a state technology transfer plan. The outline suggested here is not intended to be a fully complete set of "how to-" directions. Rather, the materials assembled here should form the framework on which a state technology transfer program—unique to the state situation and needs—can be developed.

This guide is intended to stimulate interest in, and awareness of, the technology transfer process. These guide materials will also show one way that a state technology transfer program can be developed. However, the main use of this guide should be as a tool to help managers get technology transferred to users, and a document from which to work. It is important to remember that there are many different ways to develop good technology transfer plans. The technology transfer project is usually a method around which a sound state technology program can be developed.

How to Develop A State Technology Transfer Program



This guide was developed by T. G. O'Keefe, T. T. Group, Forest Service, U.S.D.A., with assistance from H. G. Marx, and R. L. Knox.

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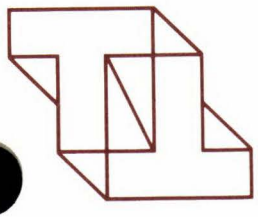


Introduction

A State technology transfer program is a system designed to move selected technologies or innovations from the point of origin to users or user groups to help solve problems or meet a need.

In developing a State program, the first task is to work with the State Forester and State forestry committee to identify (1) a problem where technology transfer can be an important solution (2) one or more technologies that should be transferred to meet a clearly identified need, or (3) technical information system needs.

The program should involve all agencies that can play a part in achieving program goals and objectives. This will facilitate technology transfer through cooperative working arrangements among agencies. County level participation is also important. Agency personnel at the delivery level should be involved, or informed, during the planning process.

After identifying the need, an ad hoc planning committee composed of participating agency representatives develop the action plan. The State TT action plan is a general planning document intended to give overall direction to the State TT program. It should be a concise statement of program goals and objectives, strategies, agency roles and estimated overall cost.

When funds for the program have been assured, application plans should be developed for the specific technologies or innovations to be transferred.

In summary, steps to follow are:

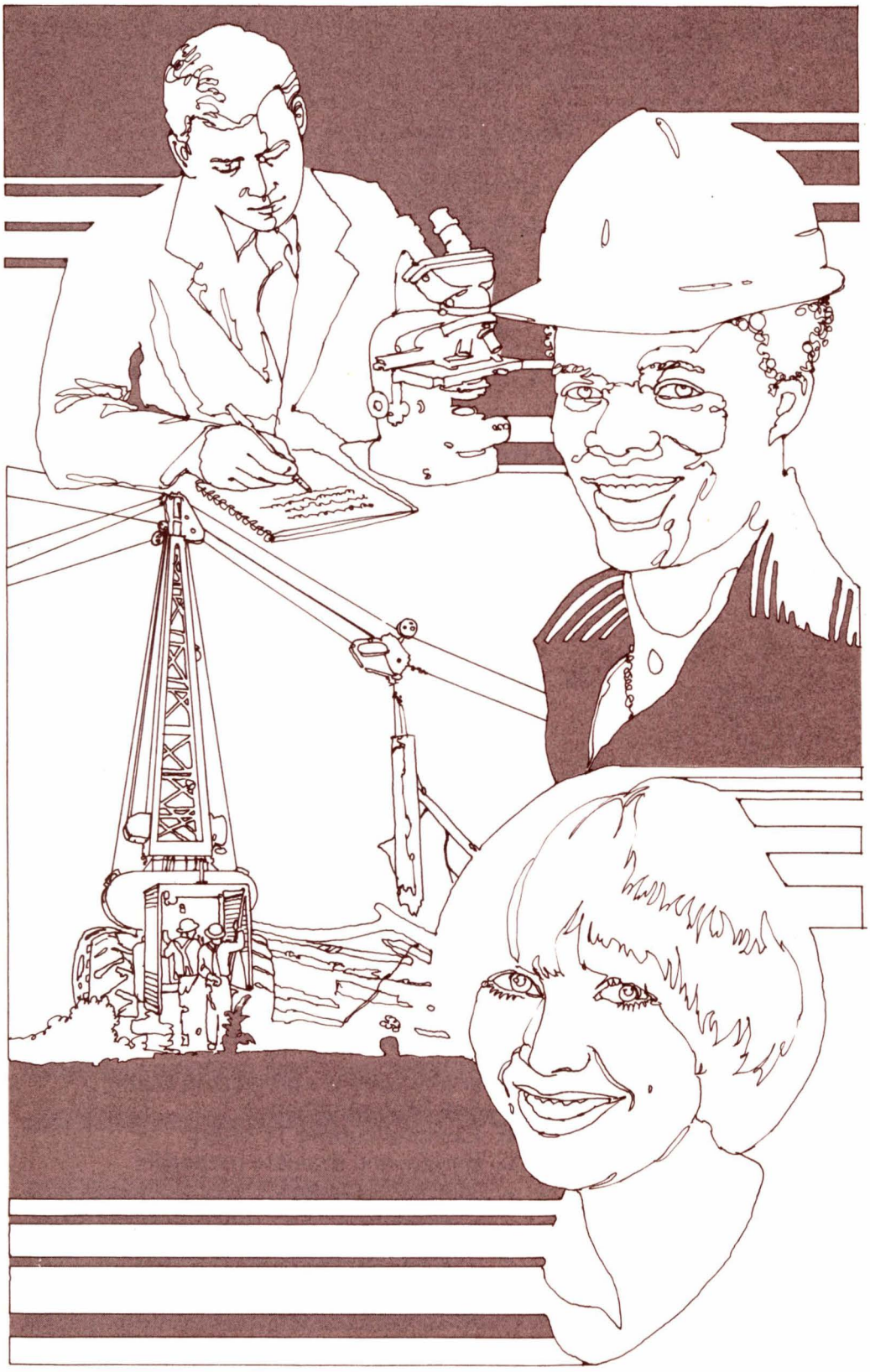
A. Organization

1. Need identification
2. Preliminary contacts
3. Establish State TT planning group (ad hoc)
4. Develop an action plan

B. Application Plans

1. Project title
2. Message
3. Objective
4. Audience
5. Team
6. Media to be used
7. Budget
8. Evaluation and Documentation

Program Development



Program Development

State technology transfer pilot projects should be developed in two phases. The first phase consists of organizing the mechanism for technology transfer within the State through development of an *action plan.* The second phase consists of identifying technologies needing transfer and developing application plans for selected projects.

Phase I—Organization

A. Identification of Need

1. By agency
   a. State forest resource plans
   b. Manager
   c. Specialist
   d. Scientist
2. By contact (question) from potential user

State resource plans identify resource issues that should be addressed or someone, at some point, sees actual or potential use of existing (or developing) research for some user group.

B. Preliminary Contacts

1. Single individual must be responsible for initial contacts and organization.
2. State Forester is focal point

C. Establish ad hoc State TT Planning Group

1. "Lead" agency contact representatives of forestry groups listed below
2. Participants
   a. State forestry agency
   b. Extension forester
   c. University
   d. Forest Service
   e. Soil Conservation Service
   f. Forest industry
   g. Others
3. Hold organization meetings with State Forestry Committee to establish working relationships.
4. Inventory possible projects in State
   a. Establish priorities
   b. Examine current TT effort
   c. Review and evaluate proposals
5. Develop a concise action plan
   a. Statement of issue to be addressed
   b. Strategy to be employed (including technologies to be transferred)
   c. Roles and responsibilities of the various agencies
   d. Estimated cost

Application Plan Development

Application Plan Development

Actual development of the technology transfer plan can involve most or all of the following seven elements

Phase II—Develop Application Plan(s)

A. Determine brief title for each project

Message

B. Develop the Message

1. Define nature of problem
2. Resources available, and what further needs to be developed

Objectives

C. State the Objective

1. Short term and long term
2. Include expected accomplishments
3. State in measurable terms e.g., increased $/ac. return to woodlot area in one year (basis for project evaluation)

Audience

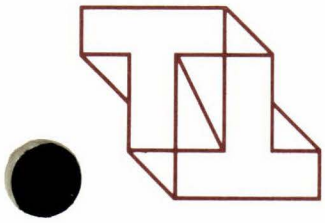
D. Identify Audience

1. List the expected users
2. State how users will benefit
3. List major characteristics of users, e.g.
   a. Small, well defined (and easily reached)
   b. Large, poorly defined (difficult to reach)
   c. Specialized groups (professionals)
4. List user groups in order of priority

Team

E. Select the Team

1. Identify team leader
2. Identify skills needed, e.g.
   a. Writer/translators
   b. Specialists
   c. Extension personnel
   d. Researchers
3. Develop Work Units Based On
   a. Subject matter or
   b. Audience type



e.g.—*subject matter* work units from "Southern Pine Beetle" TT Project

Work Unit 1 - Silvicultural practice
Work Unit 2 - Utilization guideline
Work Unit 3 - New insecticide

audience type work units from Woodlot Improvement TT project or—

Work Unit 1 - Resident woodlot owners
Work Unit 2 - Non-resident woodlot owners
Work Unit 3 - General public

4. Identify who needs to be involved by work units (spread opportunity for participation)

Media

F. Select the Transfer Method

1. Selection will depend on audience, resources available, and budget available
2. Mass media is most useful for reaching the general public, but it is very costly and difficult to measure the impact
3. Media most frequently used are:
   a. "How to" pamphlets developed from technical bulletins
   b. Slide/tapes, film, video tape
   c. Seminars, workshops, demonstrations
   d. Teaching/learning packages
   e. One-to-one or one-to-group technical assistance
4. Note, and compare the cost of each media selected—including personnel requirements

Cost

G. Prepare a Budget, Including:

1. Personnel costs and travel expenses
2. Media costs
3. Cost of contracting, if required
4. Sources of funding (state, federal, industry, other)
5. How funds will be distributed to cooperating agencies

Evaluation

H. Develop an Evaluation Methodology

1. Set project goals that can be easily measured in specific terms, and specific time e.g. bd. ft./ac./year
2. Set goals that can be clearly related to project activity above

Schedule

I. Develop Working Schedule
(a sequential list of specific tasks necessary to move action plan)

1. Organize the schedule by
   a. Area (wider goals and broader time-frame)
   b. Task (specific goals and narrow time-frame)
   c. Develop time line analysis
   (CPA or PERT may be *useful*)
2. Example: Technology Transfer Schedule

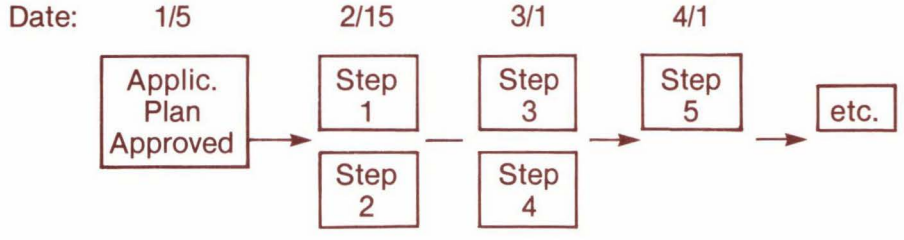
Project title: _____ Date: _____

* *Sequence List*

Step #	Action/Task	Responsible Agency/Individual	Date Due	Cost	Status
1.	Write "how to" pamphlet	FS/IO w/spec. or researcher	2/15	$2000	On time
2.	Prepare slide/tape for training	State I&E w/spec. or researcher	2/15	$5000	Behind
3.	Seminar to train 10 Ext. agents	State For, Ext. For., FS & University	3/1	$3000	In progress
4.	Contact Assns. to explain program	State Forester	3/1	-0-	In progress
5.	Write 3 local newstories for 10 areas	Extension agents	4/1	$3000	In progress

— etc. —

* *Sequence diagram (if needed):*



Approval

J. Obtain approval of participating agencies

Document

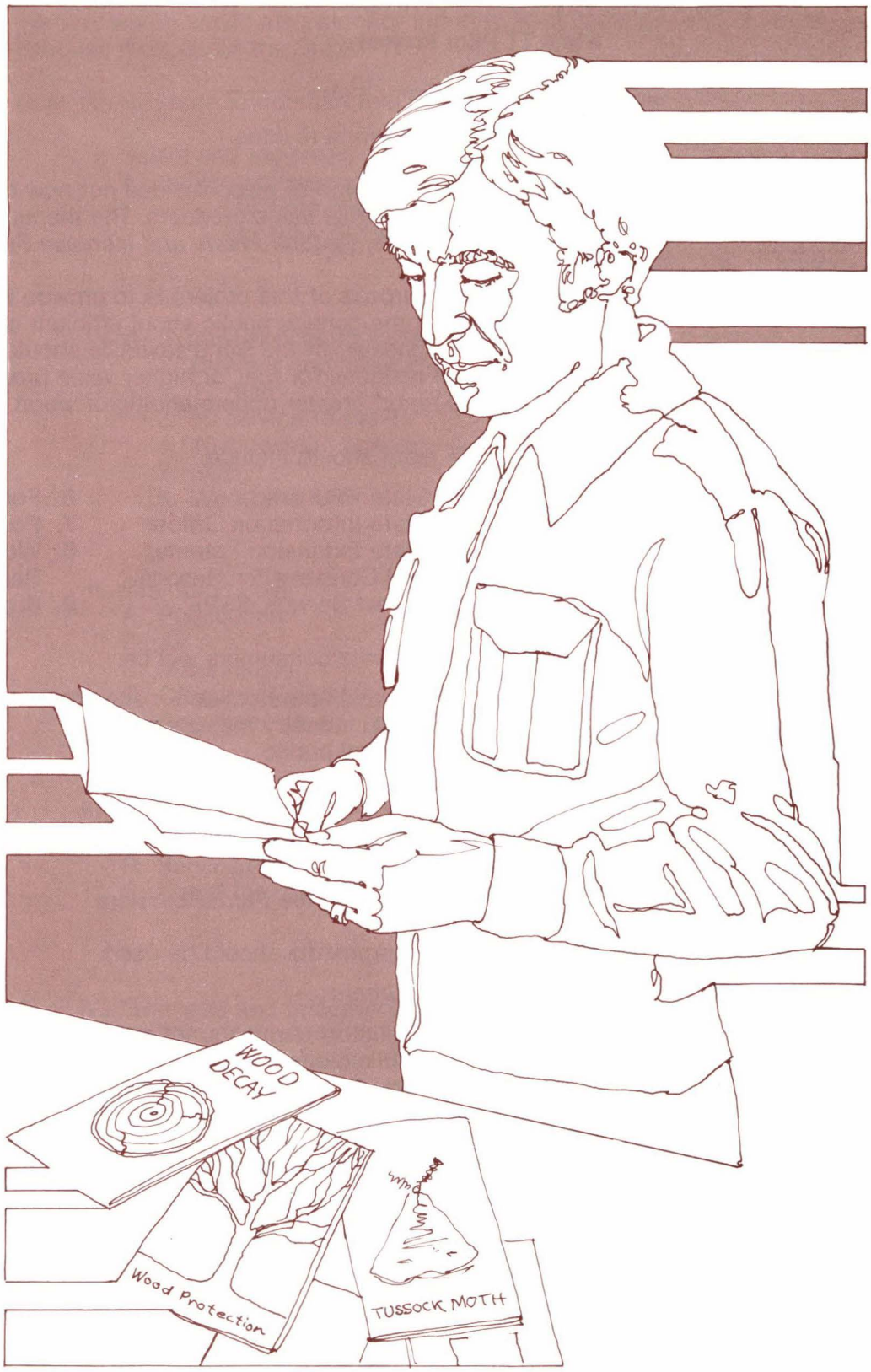
K. Document Project

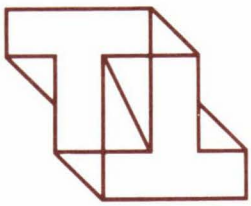
1. Develop reports—periodic, final
2. Circulate reports to all interested parties

Implement

L. Implement project

Suggested Format: TT Project Proposal





Suggested Format: TT Project Proposal

State TT Pilot Project

Period: _____ to _____

Title: Utilization of wood residue

Message: A large volume of wood residue not now being used, can be utilized for fuel or higher value products. The theme will be—
Use Wood Residues, Reduce Waste and Increase Profits.

Objective: The purpose of this project is to provide technical information to mill owners, and the general public about efficient use of wood residue. After one year, one-half of the State sawmills should be reporting increased use of residues for fuel, or higher value products, and the general public should report greater understanding of wood residue utilization.

Team: The TT team should include:

1. State FPU officer
2. State Information Officer
3. State Extension Forester
4. Soil Conservation Service
5. Forest Service, S&PF
6. Forest Service, Research
7. Forest Service, IO
8. Wood Industry Representative
9. Support Specialists

Audience: The ultimate consumers will be:

1. Sawmill operators and managers
2. Wood industry managers
3. General public

The transfer agents will include:

1. Service forester
2. Extension agents
3. Industry Tree Farm Foresters

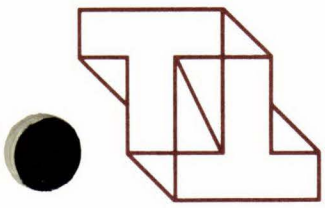
Media: The following media should be used:

Consumers

1. Technical seminars, for sawmill operator and manager
2. Publications for sawmill operators and managers
3. Slide/tape program, sawmill operator and manager
4. One-to-one technical assistance

General Public

1. Mass media—radio, TV spots and news releases
2. Popular pamphlets
3. Public meetings

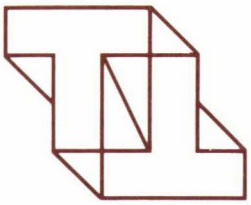


As part of this media package, several different slide/tape shows will be needed. A complete "meeting package" will be required for extension agents to conduct public seminars. In addition, a package residue utilization checklist (with visual aids) will be necessary.

It may also be desirable to develop a computerized residue marketing system, which would also monitor monthly level, location, etc. of wood residues throughout the State.

Cost: An estimate to conduct this project for one year is:

I. Salary and expenses		
A. Salary ½ time director		$ XXXXX
¼ time director		XXXXX
¼ time secretary/computer operator		XXXXX
	Sub-total:	$ XXXXXX
B. Expenses (including training)		
1. Director and assistant		XXXXX
2. TT team		XXXXXXX
3. 10 service foresters		XXXXXXX
4. 10 extension agents		XXXXXXX
5. SCS		XXXXXXX
6. Wood Industry		XXXXXXX
	Sub-total:	$ XXXXXXX
II. Operating cost		
A. Publication		XXXXXXX
B. AV		XXXXXXX
C. Mass media		XXXXXXX
D. Office materials		XXXXXX
E. Computer time/program		XXXXXXX
	Sub-total:	$ XXXXXXX
III. Training costs		
A. Extension agents and SCS		XXXXXX
B. Service foresters and wood industry		XXXXXXX
C. Travel for sawmill participants		XXXXXXX
	Sub-total:	$ XXXXXXX
	Net total (sum I + II + III) =	$ XXXXXXXX
IV. Overhead and miscellaneous:		
A. 30% of net total		XXXXXXX
B. Evaluation		XXXXXX
C. Report		XXXXXX
	Sub-total:	$ XXXXXXXX
	Grand total (sum of I–IV) =	$XXXXXXXXX



The cost of any specific action item assigned to a particular agency will be paid directly to that agency from the State forester's office at the beginning of the projects. The total cost to the agency will be calculated from the project task schedule developed by the TT Committee.

Evaluation: A. Technical evaluation, based on achievement with sawmill and wood industry manager

1. By means of written, and interview sample
2. Population definition and sample selection

B. Non-technical evaluation, based on pre- and post-testing of stratified sample of general public

1. Urban/rural, younger/older, male/female, etc.
2. Successful project measured in term of increased awareness about wood residue use. (e.g. 20% increased awareness is full success)

Reports: Progress and final reports will be due on schedule set by TT Committee.

Plan Prepared by: _____

Date: _____

Review Comments by: _____ _____ Date

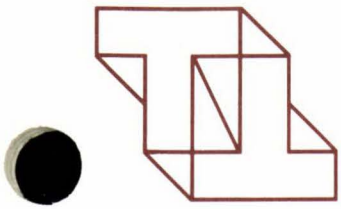
To: _____

Name: _____

Address: _____

Phone: _____

Task Assigned by: _____ _____ Date



State Technology Transfer Pilot Project Funding

Only limited funding will be available to support State TT programs. For this reason, only a few pilot projects will be established. While there is no requirement for matching of federal dollars provided under Section 8(c) of P.L. 95-313, the commitment of State resources will be a factor in pilot project selection.

A preliminary cost estimate should accompany each project proposal. Prior to project funding a more detailed budget should be developed. A primary goal of any program should be a commitment by the State to carry out their technology transfer program based on existing State staff to the greatest extent possible.

Technology transfer, or application costs, should receive early attention in RWU (Research Work Unit) and RD&A (Research, Development and Application) planning. It is important to budget adequate funds for each part of the total process on a timely basis. Too often, funds are adequate only through the research and development stages of a project, to the point of a technical publication and testing. Application funding is often too little or entirely lacking.

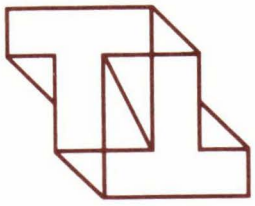
Development work includes *field testing* of the research. Field trails may be very expensive, especially where a pilot plant facility or a full management demonstration is required.

The *application* job involves *information transfer* or marketing. It is at this point, where field tested research data is available for application, that the transfer process from laboratory origin to ultimate user—become most active.

For most efficient technology transfer planning it is important that TT specialists be included early in the RWU or RD&A planning process. Adequate funding to support technology transfer considerations and the application process at appropriate stages in the RD&A or RWU-R&D processes is essential.

The full cost of the application part of the RD&A process will usually be reasonably small, if a good *development job precedes the application.* In some situations, the development and application aspects of the total RD&A process are "lumped" together. Combining development and application may be useful, under certain circumstances, to achieve application goals. Unfortunately, from a budget viewpoint, the "lumping" together of development and application costs often leads to the incorrect conclusion that the application phase of a RD&A process is very expensive. For this reason, it is important that cost estimates for a TT project proposal clearly separate development funding from application funding.

The primary purpose of State TT project funding under Section 8(c) is to provide support for the application needs of innovations or research results. If necessary, for the overall success of the application phase, field testing may be supported with Section 8(c) funds.



State Technology Transfer Project Director Experience and Responsibilities

Experience: It is important that a TT program director or coordinator understand the operations of all USDA and cooperating State agencies involved with TT project development and implementation.

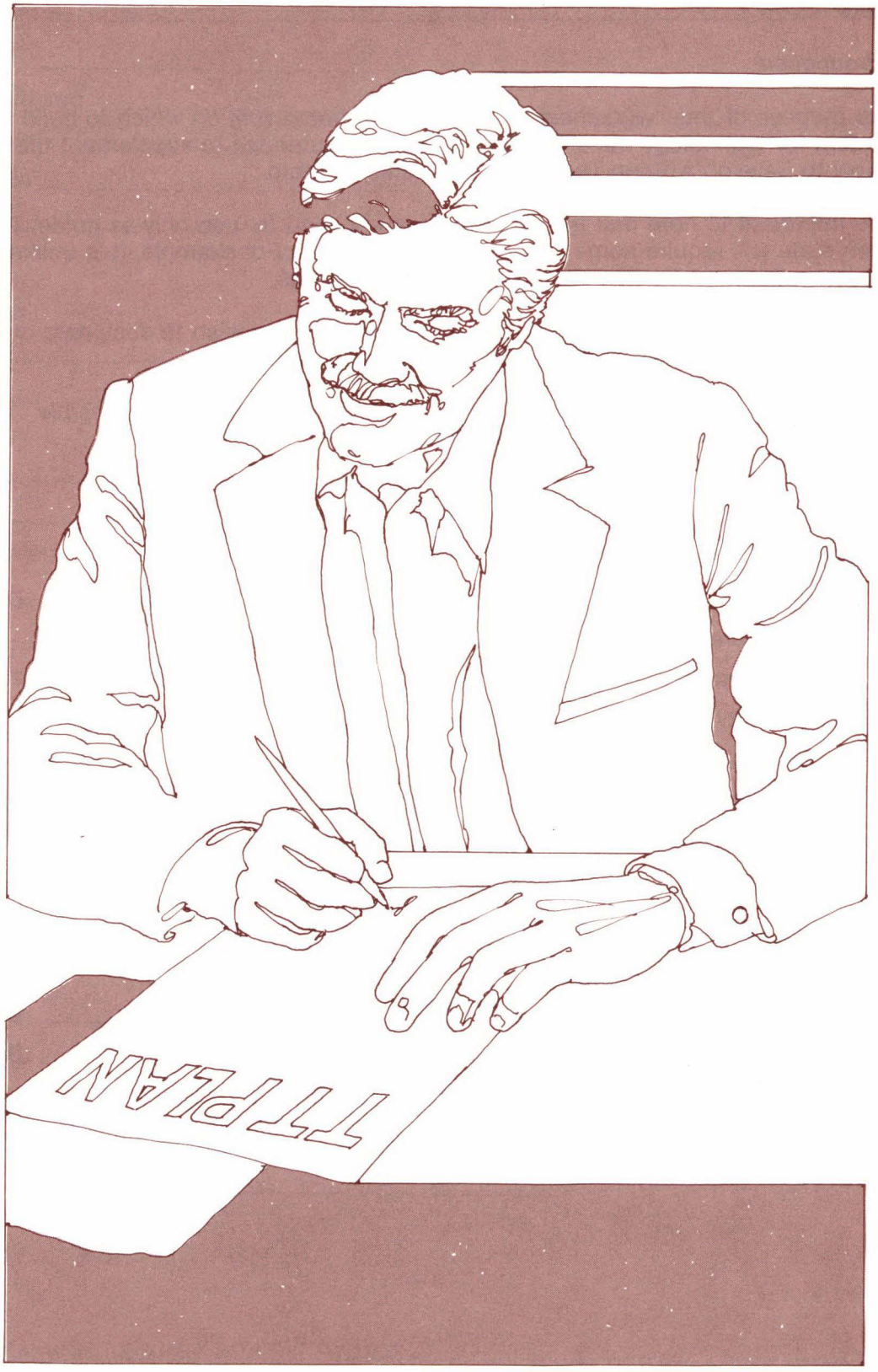
It is essential for a TT program coordinator to be a practical individual with field experience in a USDA or State agency. He or she should have good communication skills and management skills. He or she should be capable of developing broad application plans with specific tasks, and making evaluations.

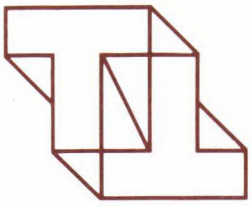
The coordinator should serve as a TT catalyst and be sensitive to the needs and concerns of both researcher and user. He should be a "generalist" rather than a specialist, with an action orientation.

Responsibilities: The coordinator for a State technology transfer program should fulfill the following responsibilities:

1. Be the focal point for developing specific TT project proposals;
2. Involve all USDA and State agencies in the program and in specific TT activities;
3. Serve as liaison between the State program, and the Forest Service Region or Area and WO-TT staff;
4. Insure adequate feedback to researchers and schedule troubleshooting as needed;
5. Develop annual budgets;
6. Closely monitor planned activities, time schedule, etc.;
7. Develop annual progress reports;
8. Plan for and carry out evaluation of final program results.

Sample Outline





Worksheet
How to Develop A State Technology Transfer (TT) Program

State: _____ Date: _____

Introduction:

The purpose of this "worksheet" is to provide a framework on which to build a functional state system for technology transfer. The worksheet is intended to supplement the material in the paper "How to Develop A State Technology Transfer Program."

It is important to note that this worksheet is intended for use only as guide. The local situation in each state will require some very specific adaptation. For example, it is unlikely that everything on the worksheet can be completed in all state situations.

Note, individuals who participate in the study group may wish to designate others within the organization as regular members of the state TT committee.

Action *Individual Responsible*

Phase I—Organization

A. TT Study Group

Participants:

Preliminary contact by: _____ Date: _____

1. State Forester _____
2. Extension Forester _____
3. University _____
4. Soil Conservation Service _____
5. U.S. Forest Service _____
6. Others _____

_____

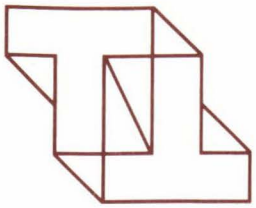
B. Developing State TT Committee

1. Meeting:

Called by: _____ Date: _____

Location: _____ Date: _____

Agenda by: _____



2. Actions Taken:
   - Topics discussed _____
   - TT Projects Considered _____
   - Resolutions Passed _____

   Committee Chairman _____
3. Charter Adopted _____

C. State TT Project

1. Information available, from

   _____ _____

   _____ _____
2. Information needed, by

   _____ _____

   _____ _____
3. TT proposals submitted, by

   _____ _____

   _____ _____
4. Priority assigned, 1 = high & 2 = low by

   _____ _____

   _____ _____

   _____ _____
5. Project(s) selected, by

   _____ _____

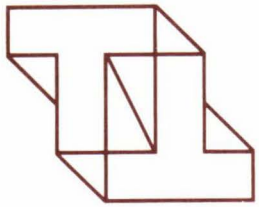
   _____ _____

Reported by: _____ Date: _____

Phase II—Application Plan

A. Project background

1. Title _____
2. Message _____
3. Objective _____



B. Audience

1. Professional (list)

_____ _____

_____ _____

2. Non-professional (list)

_____ _____

_____ _____

Reported by: _____ Date: _____

C. TT Team

1. Team Leader _____

_____

2. Researchers _____

_____

3. TT Specialists

S&PF _____

Extension _____

Others _____

4. IO, Station _____

IO, Region _____

IO, State _____

Reported by: _____ Date: _____

D. Methods

1. Mass Media

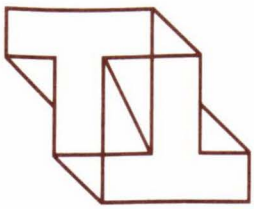
a. Radio _____

b. TV _____

c. Newspaper _____

d. Magazine _____

e. Exhibits _____



2. Tech. Journals _____
3. Seminars
   a. Workshops _____
   b. Demonstrations _____
4. Package
   a. Slide/tape _____
   b. Video tape _____
   c. Film _____
5. Written
   "How-to" pamphlet _____
   Brochure _____
6. Others

_____ _____

_____ _____

Reported by: _____ Date: _____

E. Budget
   1. Total cost, in $
   2. $ distribution, amount to: (agency)

_____ _____

_____ _____

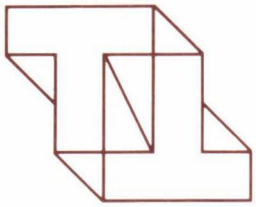
_____ _____

_____ _____

   3. Manpower

_____ _____

Reported by: _____ Date: _____



F. Evaluation

1. Short term, results
   a. _____
   b. _____
2. Long term, follow-up
   a. _____
   b. _____
3. Documentation
   a. Intermediate Reports

      _____

      _____

   b. Final Report

      _____

      _____

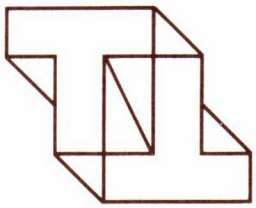
   Reported by: _____ Date: _____

G. Assignment/Approval

1. Time-table, by _____
2. Action line, by _____
3. Approved, by

	Date
a. State Forester _____	_____
b. Extension Forester _____	_____
c. University _____	_____
d. Soil Conservation Service _____	_____
e. U.S. Forest Service _____	_____
f. Others: _____	_____
_____	_____

State TT Charter



State TT Charter

Charter
State Technology Transfer Program

State: _____ Date: _____

Purpose: The major goal for the State TT Committee is to provide a method for coordinating TT activity, at a State level. This charter is also intended to foster a high level of cooperation among the interested USDA agencies and their cooperators at State, and local levels.

Procedures: Membership—The State Technology Transfer (TT) Committee should include:

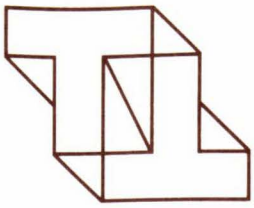
1. State forestry
2. Extension forestry
3. University
4. SCS
5. Forest industry—State Tree Farm Chairman
6. IO, station, regional, and state
7. U.S. Forest Service
8. Others, as appropriate

Meeting: Initial contacts and first meeting called by AD/P&A, subsequent meeting as determined to be necessary.

Participation: Staff from each organization will meet as appropriate on subject items to be coordinated. Working relations that now exist will not be preempted. Additional working relations will be established, as needed.

Activity: Determine mechanism for operation of appropriate state system for TT program. Set in motion, systematic planning for specific state TT project(s).

Funding: Basic Committee expenses, and staff time, will be carried by each member organization. Where specific TT project funds are available as "seed money" to support a state TT pilot project a detailed project budget will reflect the cost per activity item planned, and appropriate funds allocated to the responsible organization directly to complete that part of the TT project.

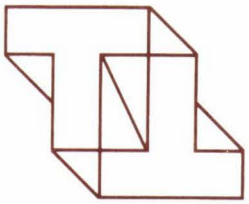


Results and evaluation: Select some very specific and measurable goals—stated in clear terms—that will serve as:

1. Statement of expected TT results within the state, in a given time period.
2. Criteria against which the overall state TT effort can be evaluated.

Approval: After requested changes in this State TT Charter have been agreed upon, the Charter will be effective on the date of the last signature, hereto. Any organization may withdraw from this Charter on written notice at any time to the other members. The total Charter may be terminated or revised on mutual consent of all parties.

Approved:	Signature	Date
U.S. Forest Service, AD/P&A	_____	_____
U.S. Forest Service, S&PF	_____	_____
State Forester	_____	_____
Extension Forester	_____	_____
SCS	_____	_____
Forest industry (Tree Farm Chair.)	_____	_____
IO, Station	_____	_____
IO, Region	_____	_____
IO, State	_____	_____
University	_____	_____
	_____	_____



State Technology Transfer Program

Charter
Addition

State: _____ Date: _____

Purpose: The major goal of this addition to the State technology transfer charter is to obtain mutual understanding and commitment from all members of the State TT Committee for a specific State TT project. Representatives of interested USDA agencies, and their cooperators at State and local levels, will provide the resources necessary to accomplish this specific State TT project, according to the working schedule developed and agreed to by the Committee.

Procedures: According to details developed in the working schedule, for the State TT project (title) _____ including sub-projects _____ and _____. The State TT committee members will cooperate in providing the necessary resources as agreed.

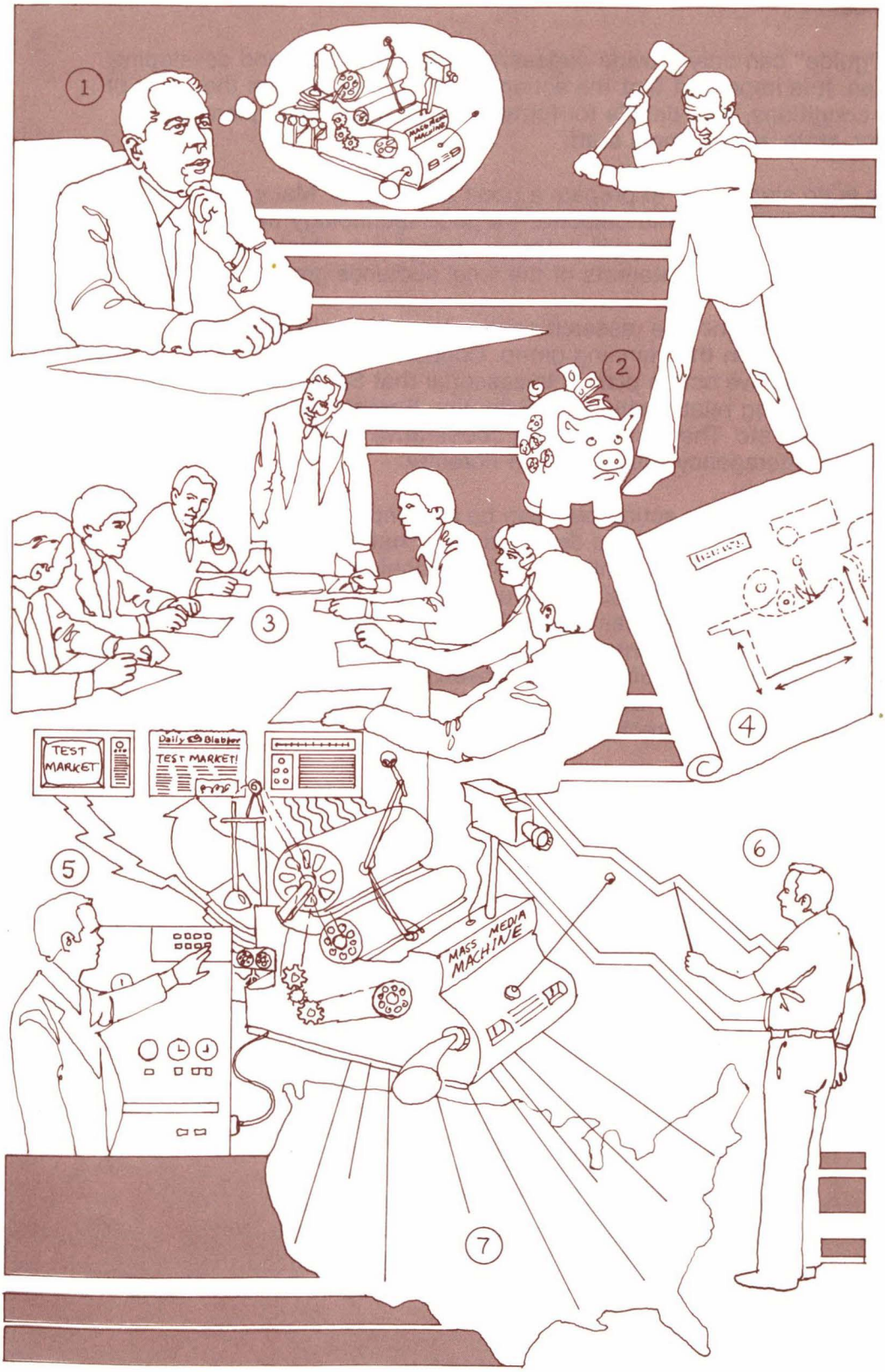
The WO-TT Staff Group will provide continuing TT assistance and advice. In addition, as Section 8(c) funding is available, some financial assistance for pilot State TT projects may be made available. Section 8(c) of the Cooperative Forest Management Act, P.L. 95-313, is intended to provide federal aid for development of State technology transfer programs.

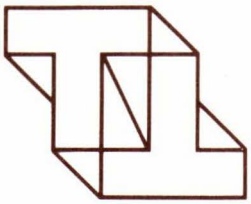
A valid State TT project must be:

1. Based on a specific technology or innovation
2. Interagency—involve all appropriate USDA agencies and cooperators

Approval: Signature of the State TT Committee members to the Charter will be implied approval of this Charter Addition.

Technology Transfer Conclusion





Technology Transfer: Conclusion

Conclusion:

Any "guide" can only provide *suggestions* for organizing and developing a TT plan. It is important that the action plan be developed on the basis of local conditions, with details for formulation of application plans from county, state, and regional staff.

There is no single way to prepare a good action plan. Many different plans can accomplish the same objective—a good technology transfer project. The most successful plan will probably be that one which most closely meets the needs and interests of the local audience groups.

It is important to include research scientists and specialists who implement the action plan on the planning group. Cooperation is a key factor in developing an effective action plan. It is essential that S&PF specialists develop a sound working relationship with Extention Forestry specialists, SCS conservationists, etc. The foundation for cooperative relations should rest with the USDA Interagency Agreement on Forestry.

Implementation of an action plan can be accomplished by following the transfer model illustrated and descibed as a "network system." This "system" provides a mechanism to move technical research data from the laboratory producer to the audience user group, through a matrix of primary and secondary transfer agents. Within this system, efficient transfer can be conducted by agents employed with U.S. Forest Service, Extension Service, State foresters office, Soil Conservation Service and private industry. Depending on the exact nature of a specific TT project, each group may be more or less directly involved.

Notes